REMARKS

In the Office Action, the Examiner rejected claims 1-5, 11-15, 19-22, 25 and 26 pursuant to 35 U.S.C. §103(a) as being anticipated by Salmon et al. (U.S. Patent No. 5,503,155). Claim 6 was rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Salmon et al. in further view of Bernstein et al. (U.S. Patent No. 5,163,421). Claims 7, 8, 16 and 23 were rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Salmon et al. further in view of Ben-Haim (U.S. Patent No. 6,083,170) and Lemelson (U.S. Patent No. 5,845,646). Claims 9, 10, 17, 18 and 24 were rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Salmon et al. further in view of Ben-Haim and Flesch (U.S. Patent No. 5,681,263). Applicants respectfully request reconsideration of claims 1-27, including independent claims 1, 11 and 19.

Claim 27 was added in a previous amendment. The cover sheet of the Office Action acknowledges 27 total claims, but a rejection has not been provided for claim 27.

Independent claim 1 requires a memory-less adaptable section operable to maintain the position of the handle section relative to the transducer section without steering wires. Salmon et al. do not disclose these limitations.

Salmon et al. disclose a mere part (drive cable) intended for use with other structure (col. 1, lines 7-10; col. 3, lines 28-34 and col. 6, lines 7-16). Taken alone, the drive cable is flexible (col. 4, lines 6-45). The drive cable includes two coils of stainless steel to provide high torsional modulas of elasticity while maintaining the flexible nature of the drive cable (col. 4, lines 46-49 and 61-65). Stainless steel wire is a poor candidate for a material operable to maintain a position of the handle relative to the transducer not as a steering wire. Stainless steel has high yield points, work hardens when deformed and has relatively low resistance to low cycle fatigue cracking. The statements of flexibility also teach away from maintaining the relative positions of handle and transducer sections. The drive cable also includes a resilient support tube to help twisted pairs of wire recover from bending without kinks (col. 5, lines 35-39). The support tube tends to straighten out the wire pair after storage or passing through tortuous regions of a vessel (col. 5, lines 39-43). Tending the straighten shows that the drive cable does not maintain the relative positions of the handle and transducer sections. The flexible drive cable is not operable to maintain the position of the handle section relative to

the transducer section without steering wires. The drive cable taught by Salmon et al. by itself provides a flexible device with no mechanism for maintaining a position. The drive cable is not operable to maintain the position of the handle section relative to the transducer section without steering wires.

When the drive cable is used as intended with the rest of the catheter, steering wires are provided. Salmon et al. specifically refer to use in devices disclosed in four different patents (col. 6, lines 7-16). U.S. Patent Nos. 5,000,185 and 4,794,931 use a guide wire 36 for steering. U.S. Patent No. 5,243,988 uses a guide catheter or the guide wire (see col. 28 of the '988 patent). U.S. Patent No. 5,203,338 uses a guide wire (see col. 4 of the '338 patent). Salmon et al. disclose a drive cable used for a rotational transducer within a catheter. When used in the suggested catheters, the references relied on by Salmon et al. disclose using steering wires. Salmon et al. do not suggest a memory-less adaptable section operable to maintain the position of the handle section relative to the transducer section without steering wires.

Independent claim 11 requires an adjustable section having a device to maintain an adjusted bent position without a device for adjusting the adjustable section during use within the patient. As discussed above, Salmon et al. teach a flexible drive cable without structure to maintain a bent position and suggest use of the drive cable in a catheter with a guide wire. Salmon et al. do not suggest an adjustable section device to maintain a bent position without a device for adjustment during use within the patient.

Claim 19 requires rotating a first axis of a transducer housing relative to second axis of a handle housing prior to inserting the probe into a cavity of a patient and maintaining a relative position while the transducer housing is within the cavity. As discussed above, the drive cable of Salman et al. is flexible and tends to an straight position, so does not maintain a relative position after rotation. Since the drive cable is intended for use in catheters with guide wires, the rotating to maintain the relative position is done while inserted within the patient and in response to guide wires.

Dependent claims 2-5, 12-15, 20-22, and 25-27 depend from the independent claims 1, 11 and 19 discussed above. Accordingly, these dependent claims are allowable for the reasons discussed above for the independent claims. Further limitations of the dependent claims distinguish these claims from Salmon et al. For example, Salmon et al. do not disclose: the adaptable section operable to maintain a plurality of positions as claimed in claims 3 and 13 (the drive cable tends towards one straight position unless otherwise constrained); the adaptable section comprising a memoryless bendable section as claimed in claims 4 and 14 (the drive cable tends to extend towards one straight position); increasing the malleability in response to external force as claimed in claims 25 and 26; maintaining the spatial orientation of the transducer section to the handle section free of change during use in the cavity as claimed in claim 27 (the drive cable changes to many different orientations while being guided by the guide wire within the patient).

Dependent claim 6 depends from the independent claim 1 discussed above, so is allowable for the reasons discussed above for independent claim 1. Claim 6 is also allowable because a person of ordinary skill in the art would not have been motivated to use the aluminum tip of Bernstein with the drive cable of Salmon et al. Bernstein uses therapeutic ultrasound transmitted from the tip of the device for angioplasty (col. 2, lines 6-15 and col. 2, lines 24-40). Aluminum alloys are used on the extreme tip due to good acoustic energy transmission qualities for application of the therapeutic ultrasound (col. 2, lines 29-55 and col. 6, lines 1-56). Salmon et al. rely on coils of metal wire such as stainless steel for specific torsional properties (col. 4, lines 46-65). There is no suggestion that Aluminum alloys would perform well for torsional modulas with flexibility. Furthermore, in use in a catheter, the guide wires are used for controlling the curvature between a handle and transducer to position the transducer. A person of ordinary skill in the art would not have used the aluminum tip of Bernstein as part of the much different drive cable or catheter with the drive cable. The acoustic transmission properties of the drive cable and steering portion between the handle and transducer do not matter for the probes of Salmon et al. Furthermore, the Examiner relies on the motivation from both references to provide a flexible catheter, yet claims 1 and 6 require maintaining the position of the handle to the transducer. A person of ordinary skill in the art would not have

combined these references to provide the invention of claims 1 and 6 and such combination would be inoperable.

Dependent claims 7, 8, 16 and 23 depend from the independent claims 1, 11 and 19 discussed above, so are allowable for the reasons discussed above for the independent claims. These dependent claims are also allowable for another reason. A person of ordinary skill in the art would not have used the ball and socket joints of Lemelson with the teachings of Ben-Haim and Salmon et al. Lemelson teaches away from using the ball and socket joints for small spaces, such as catheters. Steering wires are connected with each ball and socket joint within the catheter (col. 13, lines 19-27). Lemelson notes that "steering systems of the foregoing types [including the ball and socket joints] require internal pull wires or other internal structures which occupy space within the lumen of the catheter. Desirably, however, the catheter diameter should be as small as possible to minimize insertion trauma and unwanted damage to surrounding tissue" (col. 13, lines 54-59). Lemelson provides an alternative using magnets (col. 13, lines 60-64). Lemelson teaches away from using the ball and socket joints due to the size requirements, so a person of ordinary skill in the art would not have used the ball and socket joints of Lemelson with the catheter probe teachings of Ben-Haim. Likewise, Lemelson teaches away from using the angulation or guide wires, such as provided in the intended use of the drive cable of Salmon et al.

Dependent claims 9, 10, 17, 18 and 24 depend from the independent claims 1, 11 and 19 discussed above, so are allowable for the reasons discussed above for the independent claims. Claims 9, 10 and 17 require the latch to be part of the adaptable section between the handle and the transducer. The ball latches 34 and indentations 36 of Flesch are part of the handle, not between the handle and transducer. A person of ordinary skill in the art would not have used a rotatable control using the ball latches 34 in the handle as part of the separate bending or steered section of Ben-Haim or Salmon et al.

CONCLUSION:

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 694-5810 or Craig Summerfield at (312) 321-4726.

Respectfully submitted,

Jenny G. Ko
Registration No. 44,190
Attorney for Applicants

Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, N.J. 08830
(650) 694-5810

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